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APPLICANT: MICHAEL HOBSON ET AL.)
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SERIAL NO: 09/786,499) Art Unit: 2624
)
FILED: March 2, 2001) Examiner:
) James A Thompson
FOR: SIGNAL PROCESSING)
) Conf. No.: 1435

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PRE-APPEAL BRIEF REQUEST FOR REVIEW

Applicants request review of the final rejection in the above-identified application.
No amendments are being filed with this request. This request is being filed concurrently
with a Notice of Appeal. This review is requested for the reason(s) stated on the attached
sheet(s), which do not exceed more than five (5) pages.

REMARKS

Claims 1-15 are pending in the present application. Reconsideration and allowance of the claims is respectfully requested in view of the following remarks.

Claims 1, 2, 4, 5, 7 and 8 stand rejected under U.S.C. § 103(a) as being unpatentable over U.S. Patent Number 5,912,993 to Puetter et al. (hereinafter "Puetter") in view of U.S. Patent 5,457,639 to Ulrich (hereinafter "Ulrich"). Applicants respectfully disagree.

The primary issue in this application is whether Puetter teaches altering a coordinate basis to produce a prediction function having a reduced set of variables. Claim 1 recites, *inter alia*, "A method of reconstructing a signal from a given data set of data, the method comprising the steps of: altering the coordinate basis of the data and signal from an original coordinate basis in order to produce a prediction function having a reduced set of variables." Puetter teaches reducing "degrees of freedom" of a data set of pixels by forming pixons. The question is whether reducing degrees of freedom as taught by Puetter is equivalent to the claimed altering of the coordinate basis to reduce a set of variables. Applicants submit that these two processes are not equivalent.

In the Applicants' specification, the altering of the coordinate basis results in data subspaces of lower dimensionality (page 11, lines 3-11). For example, altering the coordinate basis in embodiments of the invention reduces N dimensional data to M dimensional data, where M is less than N. This is expressed in claim 1 as "altering the coordinate basis of the data and signal from an original coordinate basis in order to produce a prediction function having a reduced set of variables."

In applying Puetter, the Examiner cites to Puetter's use of reducing degrees of freedom to allegedly correspond to the claimed altering the coordinate basis. The reduction of degrees of freedom in Puetter does not alter the coordinate basis to produce reduced set of

variables. Puetter processes an image made up of pixels. The pixels have a two dimensional location and an intensity, and thus may be said to have a three dimensional coordinate basis (Puetter cites an $N \times N$ image). Puetter uses "degree of freedom" not in reference to a coordinate basis of the number of dimensions, but rather references each pixel as a degree of freedom (column 5, lines 41-42). Clearly, each pixel is not a coordinate basis. An $N \times N$ image is not represented using a coordinate system having N^2 axes. To reduce the degrees of freedom, Puetter effectively reduces the number of pixels by grouping regions of similar pixels into "pixons" (column 5, lines 38-67). For example, an area of 1000 pixels, all having a similar intensity, can be grouped into a single pixon, as 1000 independent intensity values are not needed to represent this area. This pixon, however, is still represented using the same number of coordinates, namely location and intensity. Grouping pixels into pixons does not alter the coordinate basis.

Puetter also teaches smoothing pixels by averaging pixels based on a Gaussian pixon width assigned to each pixel. This process renders a pixon with a uniform intensity, so that a single intensity value may be used for the pixon. Nevertheless, the pixon is still represented using location and intensity values, and thus the coordinate basis for the data has not changed. The references to "degrees of freedom" in Puetter are not directed to a coordinate basis, but rather each pixel in an image. By grouping pixels into regions of common intensity (i.e., pixons), the number of degrees of freedom are reduced.

In an attempt to make Puetter teach the claimed elements, the Examiner cites dictionary definitions of "degree of freedom" that are analogous to coordinate basis. These definitions cannot be relied on to alter the meaning of degrees of freedom in Puetter. Puetter uses "degrees of freedom" to reference the number of pixels in the images. This is clearly stated in column 5, lines 41-42 of Puetter. The extrinsic dictionary definitions provided by

the Examiner are not consistent with Puetter's use of the phrase "degrees of freedom" and thus are not relevant to the interpretation of Puetter.

The Examiner also references the doctrine of inherency and suggests that Puetter inherently reduces the coordinate basis by reducing the degrees of freedom. This is not true. Puetter reduces the number of pixels (which Puetter equates to degrees of freedom) by grouping pixels into pixons. The same number of coordinates are used, namely location and intensity. There is no reduction in the coordinate basis.

Furthermore, "[t]o establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.' " *In re Robertson*, 169 F. 3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999). Applicants respectfully submit that "altering the coordinate basis" is not *necessarily present* in the correlating the pixel values in the pseudo-image described in Puetter as to be so recognized by persons of ordinary skill. Thus, Puetter does not teach or suggest "altering the coordinate basis of the data and signal" as recited in Claim 1.

Ulrich was relied upon for disclosing aspects of Bayesian reconstruction. As noted above, Puetter fails to teach "altering the coordinate basis of the data and signal" of claim 1. Thus, even if Puetter and Ulrich are combined, the features of claim 1 do not result.

Accordingly, reconsideration and withdrawal of the outstanding rejection of Claim 1 is respectfully requested. Claims 2, 4, 5, 7 and 8 variously depend from Claim 1. Therefore, Claims 2, 4, 5, 7 and 8 are correspondingly allowable as depending upon allowable Claim 1. Reconsideration and withdrawal of the relevant rejection is

respectfully requested.

Claim 3 stands rejected under U.S.C. § 103(a) as being unpatentable over Puetter in view of U.S. Patent Number 5,457,639 to Ulich et al. (hereinafter "Ulich") and U.S. Patent Number 5,576,548 to Clarke (hereinafter "Clarke").

Claims 6, 10-12 and 15 stand rejected under U.S.C. § 103(a) as being unpatentable over Puetter in view Ulich and U.S Patent Number 4,099,179 to Hofstein (hereinafter "Hofstein").

Claims 9, 13 and 15 stand rejected under U.S.C. § 103(a) as being unpatentable over Puetter in view Ulich, Hofstein and U.S. Patent Number 5,226,019 to Bahorich (hereinafter "Bahorich"). Applicants note that while Claim 9 is not included in the introductory sentence of Item 9 on Page 11 of the Office Action, a rejection regarding Claim 9 is detailed at the bottom of Page 12. Also, Claim "16" is included in the introductory sentence and on Page 12 of the Office Action, but the details of the rejection appear to refer to Claim 15 (only Claims 1-15 are pending). Applicants understand Item 9 of the Office Action to include Claims 9, 13 and 15.

Claims 9 and 14 stand rejected under U.S.C. § 103(a) as being unpatentable over Puetter in view of Ulich and U.S. Patent Number 5,252,922 to Larson (hereinafter "Larson").

Claims 3, 6 and 9-15 depend from Claim 1. As discussed above, independent Claim 1 is allowable. Therefore, Claims 3, 6 and 9-15 are correspondingly allowable as depending upon allowable Claim 1. Reconsideration and withdrawal of the relevant rejections is respectfully requested.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicants' attorneys.

Respectfully submitted,

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